

# HumiSeal 1C49™ Silicone Conformal Coating

## Technical Data Sheet

HumiSeal 1C49™ is a moisture curing, high build, VOC-free silicone conformal coating which provides excellent moisture and environmental protection for printed circuit assemblies. HumiSeal 1C49™ is solvent free. The coating demonstrates outstanding flexibility, fluoresces under UV light for ease of inspection and can be repaired. HumiSeal 1C49™ can be cured at room or at elevated temperatures. HumiSeal 1C49™ is MIL-I-46058C qualified, IPC-CC-830 and RoHS Directive 2002/95/EC compliant, and recognized under UL File Number E105698.

### Properties of HumiSeal 1C49™

Density, g/cm <sup>3</sup> per ASTM, Meth. D1475	0.97 ± .03
Solids Content, % by weight per Fed-Std-141, Meth. 4044	95 min
Viscosity, centipoise per Fed-Std-141, Meth. 4287	9000 ± 1500
VOC, grams/litre	0
Recommended Coating Thickness, microns	50 - 200
Drying Time to Handle per Fed-Std-141, Meth. 4061	3 - 5 hours
Recommended Curing Conditions	24 hrs @ RT or 20 min @ 76°C*
Time required to Reach Optimum Properties	7 days
Recommended Stripper	HumiSeal Stripper 1090
Shelf Life at Room Temperature, DOS	6 months
Thermal Shock, 50 cycles per MIL-I-46058C	-65°C to 200°C
Coefficient of Thermal Expansion - TMA	367 ppm /°C
Glass Transition Temperature - DSC	< -65°C
Storage Modulus – DMA	408 MPa @ -40°C
	1.6 MPa @ 25°C
	1.4 MPa @ 80°C
Build per Dip, mils, per ASTM, Meth. D823	5
Flammability, per UL94	V-1
Dielectric Withstand Voltage, volts per MIL-I-46058C	>1,500
Dielectric Breakdown Voltage, volts per ASTM, Meth. D149	7000
Dielectric Constant, at 1MHz and 25°C per ASTM-D150-65T	2.5
Dissipation Factor, at 1MHz and 25°C per ASTM-D150-65T	0.01
Insulation Resistance, ohms per MIL-I-46058C	500 x 10 <sup>12</sup> (500T)
Moisture Insulation Resistance, ohms per MIL-I-46058C	100 x 10 <sup>9</sup> (100G)
Fungus Resistance, per ASTM-G21	Passes

\*Place an open pan of water in the oven during curing

### Application of HumiSeal 1C49™

Cleanliness of the substrate is of extreme importance for the successful application of a conformal coating. Surfaces must be free of moisture, dirt, wax, grease, flux residues and all other contaminants. Contamination under the coating could cause problems that may lead to assembly failures.

#### Brushing

Uniformity of the film depends on component density and operator's technique.

#### Dipping

A controlled rate of immersion and withdrawal (5-15 cm/min) will ensure even deposition of the coating and ultimately a uniform film. Blanketing dip tanks with an inert gas such as nitrogen can extend pot life.

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### Spraying

HumiSeal 1C49™ may be applied using spraying equipment designed for high viscosity coatings. Attempting to apply the material using conventional spray equipment may result in bubbles in the cured HumiSeal 1C49™ coating. When in doubt, test the ability of the spray equipment before applying coating to production boards. Spraying should be done in an environment with adequate ventilation so that the vapour and mist are carried away from the operator. The use of thinner is not required or recommended for HumiSeal 1C49™.

### Storage

HumiSeal 1C49™ should be stored at 27°C or below in tightly closed containers away from direct sunlight. If coating is partially used, the container should be purged with dry nitrogen prior to resealing. Prior to use, allow the product to equilibrate for 24 hours at room temperature.

### Caution

Use only in well-ventilated areas to avoid inhalation of vapours or spray. Avoid contact with skin and eyes. Consult MSDS prior to use.

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